

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1 to 20. (Cancelled)

21. (Currently Amended) The front-end circuit of claim [[20]]23, further comprising:  
a further switch located in at least one of the first and second signal paths.

22. (Cancelled)

23. (Currently Amended) A front-end circuit comprising:

a first signal path comprising

a first filter, and

a first reception path assigned to a first mobile radio system and a first radio

frequency band;

a second signal path comprising

a second filter, and

a second reception path assigned to a second mobile radio system and a second

radio frequency band;

a switch having an output connected to inputs of the first and second signal paths; [(and)]  
an input circuit to provide signals to the switch, the input circuit comprising an antenna  
connector; and

~~The front-end circuit of claim 22, further comprising:~~

a diode circuit to enhance isolation of the first and second signal paths, the diode circuit being arranged in the shared output path, the diode circuit for rejecting signals in at least one rejection band, the diode circuit comprising diodes connected in shunt or in series;

wherein outputs of the first and second signal paths are connected in an impedance-neutral manner to form a shared output signal path;

wherein (i) the first filter has a high output impedance in a pass band of the second filter or the second filter has a high output impedance in a pass band of the first filter, or (ii) the front-end circuit further comprises impedance-matching circuitry on an output side of the front-end circuit, the impedance-matching circuitry for matching output impedances of the first and second signal paths; and

wherein the front-end circuit is usable with a multi-band transmission system or multi-band/multi-mode transmission system.

24. (Previously Presented) The front-end circuit of claim 23, wherein the at least one rejection band comprises (i) a frequency range in which a receive band of the first signal path overlaps, at least partly, with a transmit band of the second signal path, or (ii) a frequency range in which a receive band of the second signal path overlaps, at least partly, with a transmit band

of the first signal path.

25. (Withdrawn) A front-end circuit comprising:
- a first signal path comprising a first filter;
  - a second signal path comprising a second filter;
  - a third signal path comprising a third filter;
  - a switch having an output connected to inputs of the first, second and third signal paths;
- and
- an input circuit to provide signals to an input of the switch, the input circuit comprising an antenna connector and a diplexer;
- wherein the first signal path is associated with a first mobile radio system that uses Frequency Division Multiple Access (FDMA) and Frequency Division Duplex (FDD) processes, the first mobile radio system being configured for continuous wave transmission;
- wherein the first signal path comprises a diplexer, the diplexer comprising a transmit part and a receive part, the switch being between the diplexer and the transmit part;
- wherein the second signal path is assigned to a second mobile radio system that uses a Time Division Multiple Access (TDMA) process, and the third signal path is assigned to a third mobile radio system that uses a Time Division Duplex (TDD) process;
- wherein the front-end circuit is usable with a multi-band transmission system or multi-band/multi-mode transmission system; and
  - wherein components of the front-end circuit are arranged in a common module.

26. (Withdrawn) The front-end circuit of claim 25, wherein the switch is between the diplexer and the receive part of the diplexer.

27. (Withdrawn) The front-end circuit of claim 25, wherein the receive part of the diplexer is connected in an impedance-neutral manner between the diplexer and the switch;  
and

wherein the front-end circuit further comprises a monitoring circuit which supports monitoring a signal received via the first mobile radio system in an operating mode of at least one of the first and second mobile radio systems.

28. (Withdrawn) The front-end circuit of claim 25, wherein the second mobile radio system is a multi-band system.

29. (Withdrawn) A front-end circuit comprising:  
a first signal path connected to an input, the first signal path comprising a first impedance transformation network and a first filter, the first impedance transformation network being between the input and the first filter;  
a second signal path connected to the input, the second signal path comprising a second impedance transformation network and a second filter, the second impedance transformation network being between the input and the second filter;

an antenna connector at the input;

a parallel branch connected to the first signal path at an electrical node between the first impedance transformation network and the first filter, the parallel branch comprising a switch for blocking the first signal path in a rejection band of the first signal path;

wherein the front-end circuit is usable with a multi-band transmission system or multi-band/multi-mode transmission system.

30. (Withdrawn) The front-end circuit of claim 29, wherein the switch comprises a pin diode, a GaAs switch, or a MEMS switch.

31. (Withdrawn) The front-end circuit of claim 29, further comprising:

a matching network located between the parallel branch and the first filter.

32. (Withdrawn) The front-end circuit according to claim 29, wherein the parallel branch comprises:

a DC path,

a series circuit comprising a pin diode and an inductor in series with the pin diode, the series circuit being in the DC path;

a capacitor connected in parallel with the inductor and in series with the pin diode; and

a series resonance circuit comprising the capacitor and the pin diode when enabled, a resonance frequency of the series resonance circuit being located in the rejection band.

33. (Withdrawn) The front-end circuit of claim 29, which is constructed on a carrier substrate.

34. (Withdrawn) The front-end circuit of claim 33, wherein the carrier substrate comprises metallization layers, the metallization layers being separated by dielectric layers; and wherein metallization layers comprise at least one of the impedance transformation network, the matching network, the inductor, and the capacitor.

35. (Withdrawn) The front-end circuit of claim 29, wherein the first and second filters comprises at least one of elements operating with acoustic surfaces waves, elements operating with bulk waves, ceramic microwave elements, and chip LC elements.

36. (Withdrawn) The front-end circuit of claim 29, wherein the switch comprises a GaAs switch or a MEMS switch.

37. (Withdrawn) The front-end circuit of claim 29, wherein components of the front-end circuit that are directly connected are electrically interconnected via transmission lines; and wherein all components of the front-end circuit and the transmission lines are integrated in a module comprising a carrier substrate.

38. (Withdrawn) The front-end circuit of claim 37, wherein the transmission lines comprise line sections in at least one of metallized layer of the carrier substrate.

39. (Withdrawn) The front-end circuit of claim 29, further comprising:  
a further parallel branch connected to the second signal path at an electrical node between the second impedance transformation network and the second filter, the further parallel branch comprising a switch for blocking the second signal path in a rejection band of the second signal path.

40. (Currently Amended) The front-end circuit of claim [[20]]23, wherein all components of the front-end circuit are integrated in a common front-end module.

41. (Currently Amended) The front-end circuit of claim [[20]]23, wherein the impedance-matching circuitry is in the first signal path, the impedance-matching circuitry for making an output impedance of the first signal path be high in a pass band of the second signal path; or

wherein the impedance-matching circuitry is in the second signal path, the output circuitry for making an output impedance of the second signal path be high in a pass band of the first signal path.

42. (Currently Amended) The front-end circuit of claim [[20]]23, further comprising:

output circuitry located in the shared output signal path.

43. (Currently Amended) A front-end circuit comprising:

a first signal path comprising a first filter;

a second signal path comprising a second filter;

a switch having an output connected to inputs of the first and second signal paths;

an input circuit to provide signals to the switch, the input circuit comprising an antenna connector;

The front-end circuit of claim 20, further comprising:

a parallel branch having a first end connected to the output of at least one of the first and second signal paths, and a second end connected to ground; and

output circuitry in the parallel branch;

wherein outputs of the first and second signal paths are connected in an impedance-neutral manner to form a shared output signal path;

wherein (i) the first filter has a high output impedance in a pass band of the second filter or the second filter has a high output impedance in a pass band of the first filter, or (ii) the front-end circuit further comprises impedance-matching circuitry on an output side of the front-end circuit, the impedance-matching circuitry for matching output impedances of the first and second signal paths; and

wherein the front-end circuit is usable with a multi-band transmission system or multi-band/multi-mode transmission system.



44. (Currently Amended) The front-end circuit of claim 21, wherein the further switch is located in the first signal path between the antenna connector and the first filter; or wherein the further switch is located in the second signal path between the antenna connector and the second filter.

45. (Currently Amended) A front-end circuit comprising:  
a first signal path comprising a first filter;  
a second signal path comprising a second filter;  
a switch having an output connected to inputs of the first and second signal paths;  
an input circuit to provide signals to the switch, the input circuit comprising an antenna connector; and  
a further switch located in at least one of the first and second signal paths;

~~The front-end circuit of claim 21,~~ wherein (i) the further switch is located in the first signal path, the first filter being located between the antenna connector and the further switch[:];, or (ii) wherein the further switch is located in the second signal path, the second filter being located between the antenna connector and the further switch;

wherein outputs of the first and second signal paths are connected in an impedance-neutral manner to form a shared output signal path;

wherein (i) the first filter has a high output impedance in a pass band of the second filter or the second filter has a high output impedance in a pass band of the first filter, or (ii)

the front-end circuit further comprises impedance-matching circuitry on an output side of the front-end circuit, the impedance-matching circuitry for matching output impedances of the first and second signal paths; and

wherein the front-end circuit is usable with a multi-band transmission system or multi-band/multi-mode transmission system.

46. (Currently Amended) A front-end circuit comprising:

a first signal path comprising a first filter;

a second signal path comprising a second filter;

a switch having an output connected to inputs of the first and second signal paths;

an input circuit to provide signals to the switch, the input circuit comprising an antenna connector; and

The front-end circuit of claim 20, further comprising:

a further switch located in the shared output signal path;

wherein outputs of the first and second signal paths are connected in an impedance-neutral manner to form a shared output signal path;

wherein (i) the first filter has a high output impedance in a pass band of the second filter or the second filter has a high output impedance in a pass band of the first filter, or (ii) the front-end circuit further comprises impedance-matching circuitry on an output side of the front-end circuit, the impedance-matching circuitry for matching output impedances of the first and second signal paths; and

wherein the front-end circuit is usable with a multi-band transmission system or multi-band/multi-mode transmission system.

47. (Currently Amended) The front-end circuit of claim 43, ~~further comprising:~~  
wherein the output circuitry comprising comprises a further switch, the output circuitry being located in the shared output signal path; and  
wherein the further switch is operable to short the first end of the parallel branch to ground.

48. (Currently Amended) A front-end circuit comprising:  
a first signal path comprising  
a first filter, and  
a first reception path assigned to a first mobile radio system and a first radio frequency band;  
a second signal path comprising  
a second filter, and  
a second reception path assigned to a second mobile radio system and a second radio frequency band;  
a switch having an output connected to inputs of the first and second signal paths;  
an input circuit to provide signals to the switch, the input circuit comprising an antenna connector; and

~~The front-end circuit of claim 22, further comprising:~~

a diode circuit to enhance isolation of the first and second signal paths, the diode circuit being in at least one of the first reception path and the second reception path, the diode circuit for rejecting signals in at least one rejection band of a signal path, the diode circuit comprising diodes connected in shunt or in series;

wherein outputs of the first and second signal paths are connected in an impedance-neutral manner to form a shared output signal path;

wherein (i) the first filter has a high output impedance in a pass band of the second filter or the second filter has a high output impedance in a pass band of the first filter, or (ii) the front-end circuit further comprises impedance-matching circuitry on an output side of the front-end circuit, the impedance-matching circuitry for matching output impedances of the first and second signal paths;

wherein the front-end circuit is usable with a multi-band transmission system or multi-band/multi-mode transmission system; and

wherein the diode circuit is between the antenna connector and the filter of the first or second signal paths.

49. (Previously Presented) The front-end circuit of claim 48, wherein the at least one rejection band comprises (i) a frequency range in which a receive band of the first signal path overlaps, at least partly, with a transmit band of the second signal path, or (ii) a frequency range in which a receive band of the second signal path overlaps, at least partly, with a transmit band

of the first signal path.

50. (Currently Amended) A front-end circuit comprising:

a first signal path comprising

a first filter, and

a first reception path assigned to a first mobile radio system and a first radio

frequency band;

a second signal path comprising

a second filter, and

a second reception path assigned to a second mobile radio system and a second

radio frequency band;

a switch having an output connected to inputs of the first and second signal paths;

an input circuit to provide signals to the switch, the input circuit comprising an antenna connector; and

The front-end circuit of claim 22, further comprising:

a diode circuit to enhance isolation of signal paths, the diode circuit being in at least one of the first reception path and the second reception path, the diode circuit for rejecting signals in at least one rejection band of a signal path, the diode circuit comprising diodes connected in shunt or in series;

wherein outputs of the first and second signal paths are connected in an impedance-neutral manner to form a shared output signal path;

wherein (i) the first filter has a high output impedance in a pass band of the second filter or the second filter has a high output impedance in a pass band of the first filter, or (ii) the front-end circuit further comprises impedance-matching circuitry on an output side of the front-end circuit, the impedance-matching circuitry for matching output impedances of the first and second signal paths;

wherein the front-end circuit is usable with a multi-band transmission system or multi-band/multi-mode transmission system; and

wherein ~~[[a]]~~the filter ~~[[in]]~~of the first or second signal path is between the antenna connector and the diode circuit.

51. (Previously Presented) The front-end circuit of claim 50, wherein the at least one rejection band comprises (i) a frequency range in which a receive band of the first signal path overlaps, at least partly, with a transmit band of the second signal path, or (ii) a frequency range in which a receive band of the second signal path overlaps, at least partly, with a transmit band of the first signal path.

52. (New) The front-end circuit of claim 43, wherein all components of the front-end circuit are integrated in a common front-end module.

53. (New) The front-end circuit of claim 43, wherein the impedance-matching circuitry is in the first signal path, the impedance-matching circuitry for making an output

impedance of the first signal path be high in a pass band of the second signal path; or  
wherein the impedance-matching circuitry is in the second signal path, the output circuitry for making an output impedance of the second signal path be high in a pass band of the first signal path.

54. (New) The front-end circuit of claim 43, wherein the output circuitry is located in the shared output signal path.

55. (New) The front-end circuit of claim 45, wherein all components of the front-end circuit are integrated in a common front-end module.

56. (New) The front-end circuit of claim 45, wherein the impedance-matching circuitry is in the first signal path, the impedance-matching circuitry for making an output impedance of the first signal path be high in a pass band of the second signal path; or  
wherein the impedance-matching circuitry is in the second signal path, the output circuitry for making an output impedance of the second signal path be high in a pass band of the first signal path.

57. (New) The front-end circuit of claim 45, further comprising:  
output circuitry located in the shared output signal path.

58. (New) The front-end circuit of claim 46, wherein all components of the front-end

circuit are integrated in a common front-end module.

59. (New) The front-end circuit of claim 46, wherein the impedance-matching circuitry is in the first signal path, the impedance-matching circuitry for making an output impedance of the first signal path be high in a pass band of the second signal path; or

wherein the impedance-matching circuitry is in the second signal path, the output circuitry for making an output impedance of the second signal path be high in a pass band of the first signal path.

60. (New) The front-end circuit of claim 46, further comprising:  
output circuitry located in the shared output signal path.

61. (New) The front-end circuit of claim 48, wherein all components of the front-end circuit are integrated in a common front-end module.

62. (New) The front-end circuit of claim 48, wherein the impedance-matching circuitry is in the first signal path, the impedance-matching circuitry for making an output impedance of the first signal path be high in a pass band of the second signal path; or

wherein the impedance-matching circuitry is in the second signal path, the output circuitry for making an output impedance of the second signal path be high in a pass band of the first signal path.



63. (New) The front-end circuit of claim 48, further comprising:  
output circuitry located in the shared output signal path.

64. (New) The front-end circuit of claim 50, wherein all components of the front-end circuit are integrated in a common front-end module.

65. (New) The front-end circuit of claim 50, wherein the impedance-matching circuitry is in the first signal path, the impedance-matching circuitry for making an output impedance of the first signal path be high in a pass band of the second signal path; or  
wherein the impedance-matching circuitry is in the second signal path, the output circuitry for making an output impedance of the second signal path be high in a pass band of the first signal path.

66. (New) The front-end circuit of claim 50, further comprising:  
output circuitry located in the shared output signal path.